

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

E-mail: codex@fao.org - www.codexalimentarius.org

GENERAL STANDARD FOR SOY PROTEIN PRODUCTS

CXS 175-1989

Adopted in 1989. Amended in 2019.

1. SCOPE

This Standard applies to Vegetable Protein Products (VPP) prepared from soybeans (seeds of *Glycine Max. L.*) by various separation and extraction processes. These products are intended for use in foods requiring further preparation and by the food processing industry.

2. DESCRIPTION

Soy Protein Products (SPP) covered by this Standard are food products produced by the reduction or removal from soybeans of certain of the major non-protein constituents (water, oil, carbohydrates) in a manner to achieve a protein (N x 6.25) content of:

- in the case of soy protein flour (SPF) 50% or more and less than 65%;
- in the case of soy protein concentrate (SPC) 65% or more and less than 90%;
- in the case of soy protein isolate (SPI) 90% or more.

The protein content is calculated on a dry weight basis excluding added vitamins, minerals, amino acids and food additives.

3. ESSENTIAL COMPOSITION AND QUALITY AND NUTRITIONAL FACTORS

3.1 Raw materials

Clean, sound, mature, dry seeds essentially free from other seeds and foreign matter in accordance with Good Manufacturing Practice, or SPP of lower protein content meeting the specifications contained in this Standard.

3.2 SPP shall conform to the following compositional requirements:

3.2.1 **Moisture content** shall not exceed 10% (m/m).

3.2.2 **Crude protein** (N x 6.25) shall be:

- in the case of SPF, 50% or more and less than 65%
- in the case of SPC, 65% or more and less than 90%
- in the case of SPI, 90% or more

on a dry weight basis excluding added vitamins, minerals, amino acids and food additives.

3.2.3 **Ash**

The yield of ash on incineration shall not exceed 8% on a dry weight basis.

3.2.4 **Fat**

The residual fat content shall be compatible with Good Manufacturing Practices.

3.2.5 **Crude fibre** content shall not exceed:

- in the case of SPF, 5%
- in the case of SPC, 6%
- in the case of SPI, 0.5%

on a dry weight basis.

3.3 Optional ingredients

- (a) carbohydrates, including sugars
- (b) edible fats and oils
- (c) other protein products
- (d) vitamins and minerals
- (e) salt
- (f) herbs and spices

3.4 Nutritional factors

Processing should be carefully controlled and sufficiently thorough to secure optimum flavour and palatability, as well as to control such factors as trypsin inhibitor, hemagglutinins, etc., in accordance with intended use. Where it is necessary to control trypsin inhibitor activity in a food, the maximum level allowed should be defined in terms of the finished product. Certain SPP are produced under low temperature conditions to avoid loss of protein solubility or enzyme activity. The special purpose SPP shall be assayed for protein nutritive value after appropriate heat treatment. Processing must not be so severe as to appreciably impair the nutritive value.

4. FOOD ADDITIVES

4.1 Processing Aids

During the course of manufacturing SPP the following classes of processing aids may be used:

The processing aids used in products conforming to this Standard should be consistent with the *Guidelines on Substances used as Processing Aids* (CXG 75-2010).

- Acidity Regulators
- Antifoam Agents
- Firming Agents
- Enzyme Preparations
- Extraction Solvents
- Antidusting Agents
- Flour Treatment Agents
- Viscosity Control Agents

4.2 Food Additives

No food additives are permitted in vegetable protein products.

5. CONTAMINANTS

SPP shall be free from heavy metals in amounts which may represent a hazard to health.

6. HYGIENE

6.1 It is recommended that the products covered by the provisions of this Standard be prepared in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969).

6.2 To the extent possible in Good Manufacturing Practice, the products shall be free from objectionable matter.

6.3 When tested by appropriate methods of sampling and examination the product:

- (a) shall be free from micro-organisms in amounts which may represent a hazard to health;
- (b) shall not contain substances originating from micro-organisms in amounts which may represent a hazard to health; and
- (c) shall not contain other poisonous substances in amounts which may represent a hazard to health.

7. PACKAGING

SPP shall be packed in suitable hygienic containers which will maintain the product during storage and transport in a dry and sanitary condition.

8. LABELLING

The provisions of the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985) shall apply.

8.1 Name of the food

8.1.1 The name of the food to be declared on the label shall be:

- “Soy protein flour” or “soya protein flour” when the protein content is 50% or more and less than 65%.
- “Soy protein concentrate” or “soya protein concentrate” when the protein content is 65% or more and less than 90%.

- “Soy protein isolate” or “isolated soy protein” or “soya protein isolate” or “isolated soya protein” when the protein content is 90% or more.

8.1.2 The name may include a term which accurately describes the physical form of the product, e.g., “granules” or “bits”.

8.1.3 When the SPP is subjected to a texturization process, the name of the product may include an appropriate qualifying term such as “textured” or “structured”.

8.2 List of ingredients

A complete list of ingredients shall be declared on the label in descending order of proportion except that in the case of added vitamins and added minerals, these ingredients shall be arranged as separate groups for vitamins and minerals, respectively, and within these groups the vitamins and minerals need not be listed in descending order of proportion.

8.3 Labelling of non-retail containers

Information for non-retail containers shall either be given on the container or in accompanying documents, except that the name of the product, lot identification and name and address of the manufacturer or packer shall appear on the container. However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this Standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this Standard shall be used.